

What is claimed is:

1. A method for enabling multi-path functionality between a host bus adapter in a host computer of a storage system and at least one storage device, wherein the host bus adapter provides a communication connection
5 between at least one storage device and the host computer, the host computer having a processor and associated memory, and an operating system including a PnP manager that maintains a logical device stack for the storage device, comprising the steps of:
 - intercepting responses from one or more of the storage devices to
10 PnP requests initiated from the PnP manager seeking the identity of the storage device;
 - modifying the PnP responses to cause a multi-path SCSI class device driver to be loaded;
 - attaching a component device object to the device stack of the storage
15 device;
 - obtaining an identifier for the component device object;
 - determining whether a master device object having an identifier corresponding to the identifier for the component device object exists, and if so, then creating an association for the component device object as an
20 available path for the master device object; and
 - if a master device object having an identifier corresponding to the identifier for the component device object does not exist, then creating a master device object and linking the master device object to the device stack of the storage device by obtaining a pointer to the component device object.
- 25 2. A method according to claim 1, wherein the step of intercepting responses from one or more of the storage devices to PnP requests initiated

from the PnP manager seeking the identity of the storage device includes intercepting responses to PnP requests having a minor function code of IRP_MN_QUERY_ID and a query type of BusQueryDeviceID, BusQueryCompatibleIDs, or BusQueryHardwareIDs.

5 3. A method according to claim 1, wherein the step of modifying the PnP responses to cause a multi-path SCSI class device driver to be loaded comprises replacing the PnP enumerator type in the response with a predetermined PnP enumerator type.

10 4. A method according to claim 2, further comprising the step of replacing hardware string identifier information with a predetermined hardware string identifier for responses having a query type of BusQueryHardwareIDs.

15 5. A method according to claim 1, wherein the step of determining whether a master device object having an identifier corresponding to the identifier for the component device object exists includes searching a list of master devices stored in the memory associated with the processor.

20 6. A system for enabling multi-path functionality between a host bus adapter in a host computer of a storage system and at least one storage device, wherein the host bus adapter provides a communication connection between at least one storage device and the host computer, the host computer having a processor and associated memory, and an operating system including a PnP manager that maintains a logical device stack for the storage device, comprising:

25 means for intercepting responses from one or more of the storage devices to PnP requests initiated from the PnP manager seeking the identity of the storage device;

means for modifying the PnP responses to cause a multi-path SCSI class device driver to be loaded;

means for attaching a component device object to the device stack of the storage device;

means for obtaining an identifier for the component device object;

5 means for determining whether a master device object having an identifier corresponding to the identifier for the component device object exists, and if so, then creating an association for the component device object as an available path for the master device object; or if a master device object having an identifier corresponding to the identifier for the component device object does not exist, then creating a master device object and linking the
10 master device object to the device stack of the storage device by obtaining a pointer to the component device object.

7. A system according to claim 6, wherein the means for means for intercepting responses from one or more of the storage devices to PnP requests initiated from the PnP manager seeking the identity of the storage
15 device comprises an HBA-specific filter driver.

8. A system according to claim 7, wherein the HBA-specific filter driver intercepts responses to PnP requests having a minor function code of IRP_MN_QUERY_ID and a query type of BusQueryDeviceID, BusQueryCompatibleIDs, or BusQueryHardwareIDs and replaces the
20 enumerator type in the response with a predetermined enumerator type.

9. A system according to claim 6, wherein the multi-path SCSI class device driver creates a component device object for the storage device and attaches the component device object to the device stack for the storage device.